

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 02-017634

(43)Date of publication of application : 22.01.1990

(51)Int.Cl.

H01L 21/225

(21)Application number : 63-168208

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(22)Date of filing : 06.07.1988

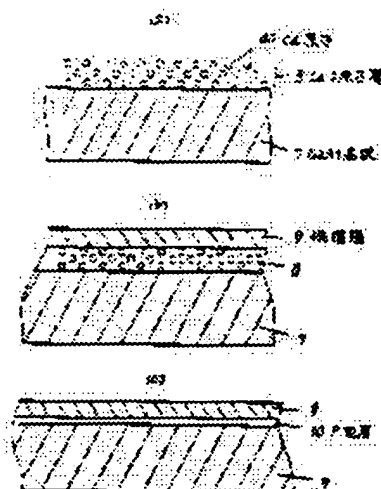
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## (54) METHOD OF DOPING IMPURITY TO SEMICONDUCTOR

## (57)Abstract:

**PURPOSE:** To make it possible to obtain an impurity added layer which is extremely thin of 500 $\text{\AA}$  or less with excellent control by having an LB film deposition process, an organic substance removal process, and an impurity diffusion process.

**CONSTITUTION:** In the first process, a desired number of LB films containing Cd atom 40 which serves as a dopant are deposited on the surface of a GaAs substrate 7 by a Langmuir-Blodgett's technique. After passing through the second process in which the three molecular layers on the substrate 7 thus obtained are processed in O<sub>2</sub> plasma, hydrogen carbonate chains of hydrophobic group are removed. Thus, an atomic layer 8 composed of Cd atom 40 can be formed on the substrate 7. In the third process, after forming a protective layer 9 made of SiO<sub>2</sub>, an insulation film such as SiO<sub>2</sub> or SiN, etc., or a high-melting point metal layer such as WSi on the atomic layer 8, it is annealed in high temperatures and a p-type layer 10 of Cd diffusion is formed. Since the p-type layer 10 thus obtained is formed from impurity atoms of several atom layers, an extremely thin film of 500 $\text{\AA}$  or thinner can be formed.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]